CLAIMS

1. Power storage system, intended to transmit power to and from a driving system of a vehicle, said driving system comprising at least one electric apparatus (12),

comprising a power storage (20) having a stator-provided winding (24) and at least one rotor (21) provided with a magnetic-flux generating device, said rotor (21) being connected to at least one flywheel (22) intended for storage of energy in the form of kinetic energy in at least one rotary mass (23),

said power storage (20) being arranged

to transmit power to and from said electric apparatus (12),

characterized in

that said stator (24) comprises at least a first winding (30) arranged to operate at low voltage as well as a second winding (31) arranged to operate at high voltage, said first and second windings being arranged to operate independently of each other.

2. Power storage system according to the preceding claim,

characterized in

that at least one energy storage (14) is comprised, which energy storage is connected with said electric apparatus (12), said power storage (20) being arranged to transmit power to and from said energy storage (14).

3. Power storage system according to any one of claims 1 or 2,

characterized in

that said power storage (20) is arranged to receive power that has been transmitted from an external source.

4. Power storage system according to any one of the preceding claims,

characterized in

that said magnetic-flux generating device in the rotor (21) comprises permanent magnets.

5. Power storage system according to any one of claims 1–3,

characterized in
that said magnetic-flux generating device in the rotor (21) comprises a squirrel cage winding.

6. Power storage system according to any one of the preceding claims, **characterized in**
that said rotor (21) is mounted with magnetic bearings.

7. Power storage system according to claim 6, **characterized in**
that said rotor (21) also is mounted with sliding bearings.

8. Power storage system according to any one of the preceding claims, **characterized in**
that said first winding (30) is arranged to operate at a voltage that is lower than 380 V.

9. Power storage system according to claim 8, **characterized in**
that said first winding (30) is arranged to operate at a voltage that is in the interval of 6–50 V.

10. Power storage system according to any one of the preceding claims, **characterized in**
that said second winding (31) is arranged to operate at a voltage that is higher than 380 V.

11. Power storage system according to claim 10, **characterized in**
that said second winding (31) is arranged to operate at a voltage that is in the interval of 1–24 kV.

12. Power storage system according to any one of the preceding claims, **characterized in**

that said stator (24) is air-gap wound.

13. Power storage system according to any one of the preceding claims, **characterized in**
that said power storage (20) is gyro suspended.

14. Power storage system according to any one of the preceding claims, **characterized in**
that said flywheel (22) comprises two rotary masses (23) that are arranged to rotate in opposite directions of rotation in relation to each other.

15. Power storage system according to any one of the preceding claims, **characterized in**
that at least one of said windings (30, 31) comprises a conductor surrounded by a first semiconducting layer, said first semiconducting layer is then surrounded by a layer of fixed insulation, said first layer of fixed insulation is then surrounded by a second semiconducting layer.

16. Power storage system according to any one of the preceding claims, **characterized in**
that said rotor (24) comprises a first core (32), a second core (33) as well as a third core (34), the first winding (30) of the stator being arranged between said first (32) and said second (33) core and the second winding (31) of the stator being arranged between said second (33) and said third (34) core.

17. Vehicle provided with a power storage system according to any one of claims 1–16.